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NOTES FOR STUDENTS

The vegetation of Connecticut.—NICHOLS⁴ has published the first three papers of a contemplated series detailing the various ecological features of the vegetation of Connecticut. The first of these papers deals with general phytogeographic features, both floristic and ecological. The most interesting floristic problem considered is the segregation in the southeastern part of the state of many characteristic coastal plain plants. Some of these plants are confined to the southeastern part of the state, and the rest are decidedly more frequent there. One of the most important of the latter class is *Chamaecyparis thyoides*, the chief character plant of the "cedar swamps"; associated with this is *Rhododendron maximum*. Since these coastal plain plants are found more or less continuously along Long Island, NICHOLS favors the theory of a post-glacial land bridge connecting eastern Long Island with the mainland, as suggested by HOLLICK. The climax forest of the state is very mesophytic and is composed of several deciduous trees (chestnut, white oak, red oak, sugar maple, red maple, beech, tulip, linden, etc.) with the hemlock. The forests in the hilly regions of northwestern Connecticut contain the spruce, fir, and other forms that are strikingly more boreal than are the coastal plain plants of southeastern Connecticut. After giving brief consideration to maritime and some other associations, NICHOLS notes a few of the cases of eccentric distribution in the state; a notable instance is that of a moss, *Claopodium pellucinerve*, which is known elsewhere only from the Yukon Territory and India. The first paper closes with an account of the climate and physiography of the state.

The second paper is devoted to a consideration of the virgin forests of Connecticut. Much the finest of these was the recently destroyed Phelps forest in Colebrook, in the northwestern part of the state. So far as known, this forest of 300 acres dates back to prehistoric days, almost unmodified by the ax or by fire. It is taken to be the dominating type of forest in the state, up to the time of settlement by the white man, and may be regarded as the best example of a climax forest in Connecticut. *Fagus grandifolia* and *Tsuga canadensis* make up 55 per cent of the stand. *Acer saccharum* and *Betula lutea* comprise 22 per cent. The remaining 23 per cent is made up of *Quercus rubra*, *Castanea dentata*, *Fraxinus americana*, *Tilia americana*, *Prunus serotina*, *Betula lenta*, *Acer rubrum*, and *Pinus Strobus*. Some of the trees are of immense size, and it is noted that the same species form the undergrowth. There is a rich undergrowth of shrubs, in which a large part is played by *Taxus canadensis*, *Viburnum alnifolium*, and *Kalmia latifolia*. The liverwort and moss flora are astonishingly rich. It is a matter of profound regret that this beautiful and unique forest was destroyed in 1912, so that the last extensive primeval woodland of the state has gone. NICHOLS is to be congratulated upon having made a record

⁴NICHOLS, G. E., The vegetation of Connecticut. I. Phytogeographical aspects. II. Virgin forests. III. Plant societies on uplands. *Torreyana* 13:89-112. figs. 6; 199-215. figs. 5. 1913; 14:167-194. figs. 9. 1914.

of its plant population before it was too late. Three fragments of primeval forest are noted in the same part of the state. The population is much the same as that of the Colebrook forest, except that the one in Cornwall is dominated by *Pinus Strobus*; these pines are said to be the most magnificent still existing in the East. The pine is not the climax type, however, since the undergrowth is dominated by hemlock and several hardwoods.

In a third paper, NICHOLS details the successional relations of the upland vegetation of the state. One of the most characteristic rock types of Connecticut is the trap ridge, whose vegetational history is depicted from the pioneer crustose lichens through the herb, shrub, and tree stages. Early trees are *Juniperus virginiana* and *Quercus stellata*, following which *Carya glabra* and *Quercus Prinus* are likely to prevail. These form a somewhat open forest, which later develops into a closed forest, dominated by several species of oak and hickory. This or a more mesophytic forest represents the climax type. The trap ridges have very characteristic talus slopes, on which the vegetation passes rather rapidly to the mesophytic climax forest. Another interesting upland succession is that of the sand plains, on which one of the prominent early tree stages is dominated by *Pinus rigida*, which later is succeeded by oaks. In the state are many abandoned fields which are reverting to forest, an early stage being that dominated usually by *Betula populifolia*, *Juniperus virginiana*, and *J. communis depressa*. Note is made of the varying importance of certain trees in different portions of the state; *Pinus Strobus* is of special interest in this respect, being a common pioneer in some parts, almost a climax tree in other parts, and negligible in still other parts. The importance of the chestnut in many Connecticut woodlands is being greatly lessened, owing to the ravages of the chestnut bark fungus, *Endothia gyrosa parasitica*.—H. C. COWLES.

Inheritance of semi-sterility.—BELLING⁵ has made a careful analysis of the inheritance of partial sterility in crosses of *Stizolobium deeringianum* Bort. (Florida velvet bean) with other species of the same genus, namely *S. niveum* (Roxburgh) Kuntze (Lyon bean), *S. hassjoo* Piper and Tracy (Yokohama bean), and *S. niveum* var. (China bean). The pollen from healthy flowers of all these forms was found to be nearly 100 per cent good. A few ovules of some pods only were found to have aborted, due, the author believes, to circumstances unfavorable for those particular pods. From a third to a half of the pods had no aborted ovules. The ovules in general had completely formed embryo sacs. Of the F_1 generation of the three crosses, approximately 50 per cent of the pollen grains were found to be shrunken and non-viable, the other 50 per cent being perfectly developed and viable. Similarly, approximately 50 per cent of the ovules of F_1 plants abort. Sections of young ovaries

⁵ BELLING, JOHN, The mode of inheritance of semi-sterility in the offspring of certain hybrid plants. Zeitschr. Ind. Abs.- u. Vererbungs. 12:303-342. 1914.